What is claimed is:

Sub B9

1. An epitaxial base substrate comprising:

a base made of a single crystal material, and

a III nitride film including at least Al element and having a screw-type dislocation density of $1\times10^8/cm^2$ or below which is formed on said base.

2. An epitaxial base substrate as defined in claim 1, wherein said III nitride film includes 50 atomic percentages or over of Al element for all of the III element.

3. An epitaxial base substrate as defined in claim 2, wherein said III nitride film is made of AlN.

4. An epitaxial base substrate as defined in claim 1, wherein said III nitride film is formed at a temperature of 1100°C or over by a MOCVD method.

5. An epitaxial base substrate as defined in claim 4, wherein said III nitride film is formed within 1100-1250°C.

6. An epitaxial base substrate as defined in claim 1, wherein the Al content of said III nitride film is continuously or stepwisely decreased in the thickness direction from said base toward the outside.

7. An epitaxial base substrate as defined in claim 1, wherein the warpage of said epitaxail base substrate is reduced up to 50 μm or below.

8. An epitaxail substrate comprising:

a base made of a single crystal material,

a III nitride buffer film including at least Al element and having a screw-type dislocation density of $1\times10^8/cm^2$ or below which is formed on said base, and

a III nitride underfilm which is formed on said III nitride buffer film.

9. An epitaxial substrate as defined in claim 8, wherein said III nitride buffer film includes 50 atomic percentages or over of Al element for all of the III element.

10. An epitaxial substrate as defined in claim 9, wherein said III nitride buffer film is made of AlN.

11. An epitaxial substrate as defined in claim 8, wherein said III nitride buffer film is formed at a temperature of 1100°C or over by a MOCVD method.

12. An epitaxial substrate as defined in claim 11, wherein said III nitride buffer film is formed within 1100-1250°C.

13. An epitaxial substrate as defined in claim 8, wherein said II nitride

underfilm includes at least Ga element.

14. An epitaxial substrate as defined in claim 13, wherein the Al content of said III nitride buffer film is continuously or stepwisely decreased in the thickness direction from said base toward said III nitride underfilm.

15. An epitaxial substrate as defined in claim 8, wherein the warpage of said epitaxail substrate is reduced up to 50 μm or below.

Add B10